

Sequential Ion, UV, and Electron Induced  
Chemical Vapor Deposition

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ABSTRACT OF THE DISCLOSURE

Ion-induced, UV-induced, and electron-induced  
10 sequential chemical vapor deposition (CVD) processes are  
disclosed where an ion flux, a flux of ultra-violet  
radiation, or an electron flux, respectively, is used to  
induce the chemical reaction in the process. The process  
for depositing a thin film on a substrate includes  
15 introducing a flow of a first reactant gas in vapor phase  
into a process chamber where the gas forms an adsorbed  
saturated layer on the substrate and exposing the substrate  
to a flux of ions, a flux of ultra-violet radiation, or a  
flux of electrons for inducing a chemical reaction of the  
20 adsorbed layer of the first reactant gas to form the thin  
film. A second reactant gas can be used to form a compound  
thin film. The ion-induced, UV-induced, and electron-  
induced sequential CVD process of the present invention can  
be repeated to form a thin film of the desired thickness.

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